

FORM PTO-1390 (Modified)  
(REV 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371**

**932.1202**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

**09/937254**

INTERNATIONAL APPLICATION NO.  
**PCT/ES00/00097**

INTERNATIONAL FILING DATE  
**March 21, 2000**

PRIORITY DATE CLAIMED  
**March 22, 1999**

TITLE OF INVENTION

**CHAIR WITH FOLDING SEAT**

APPLICANT(S) FOR DO/EO/US

**Josep FIGUERAS MITJANS**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☒ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

**Items 13 to 20 below concern document(s) or information included:**

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☐ Other items or information:



09/937254

932.1202

**UNITED STATES PATENT AND TRADEMARK OFFICE**

Re: Application of: Joseph FIGUERAS MITJANS  
Serial No.: Not yet known  
Filed: Simultaneously  
For: **CHAIR WITH FOLDING SEAT**

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

September 24, 2001

Sir:

Prior to examination, please amend the above-identified application as follows. Reference to pages and line numbers made here herein refer to the corresponding page and line numbers of the English-language translation of the application filed concurrently herewith.

**IN THE SPECIFICATION:**

Please amend the specification as set forth below.

Page 2, after the second full paragraph, insert the following paragraph.

U.S. Patent 5,803,546 discloses a chair with a folding seat, that comprises a back and a seat, which is hinged to the back about a hinge axis, said seat being movable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means of the seat from its substantially horizontal position to its substantially vertical position when the user stands up from the seat, whereby these automatic returning means of the seat are arranged around the hinge axis.

Amend the second full paragraph of page 2 to read as follows.

The chair with folding seat according to the invention comprises a back and a seat hinged to the back about a hinge axis, said seat being movable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means of the seat from its substantially horizontal position to its substantially vertical position when the user stands up from the seat arranged on the hinge axis; and it is characterized in that the hinge axis is located in the contact area between the back and the seat.

The chair with folding seat according to the invention comprises a back and [an] a seat hinged to the back about a hinge axis, said seat being movable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means of the seat from its substantially horizontal position to its substantially vertical position when the user stands up from the seat arranged on the hinge axis; and it is characterized in that [these automatic returning means of the seat to its substantially vertical position are arranged on] the hinge axis [being] is located in the contact area between the back and the seat.

**IN THE CLAIMS:**

Please amend the claims to read as set forth below.

1. Chair with folding seat, that comprises a back (1) and a seat (2), which is hinged to the back about a hinge axis (6), said seat (2) being movable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means (8) of the seat (2) from its substantially horizontal position to its substantially vertical position when the user stands up from the seat (2) arranged around the hinge axis, characterized in that this hinge axis (6) is located in the contact area between the back (1) and the seat (2).

7. Chair according to claim 1, characterized in that it comprises damping means (11) of the turning movement of the seat (2) between its substantially horizontal position and its substantially vertical position.

10. Chair according to claim 8, characterized in that the fin (12) extends across the whole seat (2), two carcasses (13) being provided, with their corresponding pistons (14), arranged one at each end of the fin (12)

*Marked-up version of claims as amended.*

1. Chair with folding seat, that comprises a back (1) and a seat (2), which is hinged to the back about a hinge axis (6), said seat (2) being movable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means (8) of the seat (2) from its substantially horizontal position to its substantially vertical position when the user stands up from the seat (2) arranged around the hinge axis, characterized in that [these automatic returning means (8) of the seat (2) to its substantially vertical position are arranged on the hinge axis (6),] this hinge axis (6) [being] is located in the contact area between the back (1) and the seat (2).

7. Chair according to [anyone of the previous claims] claim 1, characterized in that it comprises damping means (11) of the turning movement of the seat (2) between its substantially horizontal position and its substantially vertical position.

10. Chair according to claim 8 [or 9], characterized in that the fin (12) extends across the whole seat (2), two carcasses (13) being provided, with their corresponding pistons (14), arranged one at each end of the fin (12)



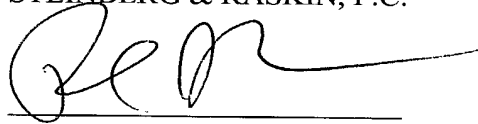
**REMARKS**

The specification has been amended herein. Marked up versions of the amended paragraphs have been provided showing the changes to the amended paragraphs.

Claims 1, 7 and 10 have been amended herein. Marked-up versions of the claims have been provided showing the changes to the claims.

Respectfully submitted,

STEINBERG & RASKIN, P.C.



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JC09 Rec'd PCT/PTO 24 SEP 2001

Verified translation  
of specification

09/937254

## VERIFICATION OF TRANSLATION

I, ANNA BARLOCCI

Of C.Consell de Cent, 322, 08007 Barcelona, Spain

declare as follows:

1. That I am well acquainted with both the English and Spanish languages, and
2. That the attached document is a true and correct translation made by me to the best of my knowledge and belief of:

The international Patent application no. PCT/ES00/00097 filed on March, 21<sup>st</sup>, 2000

Barcelona, 18<sup>th</sup> of September, 2001

Anna Bar -

09/937254

The present invention refers to a chair with folding seat, so that when the user stands up from the  
5 chair, the seat returns automatically to its substantially vertical original position.

## BACKGROUND ACCORDING TO THE INVENTION

10           The chairs with folding seat known up to now  
comprise automatic returning means of the seat to its  
substantially vertical position. These means habitually are  
formed by a counterweight, so that when the user stands up  
from the chair, and thanks to the counterweight action, the  
15 seat returns to its substantially vertical position.

The presence of this counterweight causes the hinge axis of the seat to be displaced forwardly, so that there is a clearance between the back and the seat when the seat is in its substantially vertical position.

20            This drawback is specially important in chairs  
that are placed outdoors, for example in sport places, as  
for example in stadiums. When being outdoors, the chair  
gets covered in dust and dirt, so that when the user sits  
down should clean the chair previously.

25           There are also chairs that comprise damping means of the turning movement of the seat from its substantially horizontal position to its substantially vertical position, avoiding the hit of the seat against the back.

30                   Habitually, these damping means are formed by a  
spring whose compression is adjusted by means of a screw.  
According to the compression degree, the damping of this  
movement is carried out in greater or smaller extent.

However, this type of mechanical damping means  
35 presents the drawback that, with the time, they do not damp

correctly and, accordingly, the seat may hit against the back.

Another type of damping devices of the seat returning movement comprises a cylinder of pressurised gas.  
5 However, these devices present the drawback that they are expensive and they require maintenance.

With the chair according to the invention, it is possible to solve the mentioned drawbacks, presenting other advantages that will be described hereinafter.

10

#### DESCRIPTION OF THE INVENTION

The chair with folding seat according to the invention comprises a back and an seat hinged to the back  
15 about a hinge axis, said seat being moveable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means of the seat from its substantially horizontal position to its substantially vertical position  
20 when the user stands up from the seat; and it is characterized in that these automatic returning means of the seat to its substantially vertical position are arranged on the hinge axis, the hinge axis being located in the contact area between the back and the seat.

25 Thanks to this feature, there is practically no clearance between the back and the seat when the seat is in its substantially vertical position, being this area preserved from dust and dirt. Therefore, when the user sits down on the chair according to the invention, it will be  
30 clean, not being necessary to clean it previously.

According to a preferred embodiment according to the invention, these automatic returning means of the seat to its substantially vertical position comprise elastic means integral with the seat that cause the turn of the  
35 seat from its substantially horizontal position to its

substantially vertical position about the hinge axis, which is integral with the back.

According to this embodiment, these automatic returning means of the seat to its substantially vertical position also comprise, preferably, a sleeve, arranged around the hinge axis, integral with the seat and that rotates about the hinge axis.

Preferably, these elastic means are formed by an helical spring, whose compression can be regulated by means of a screw.

The chair of the present invention also comprises damping means of the turning movement of the seat between its substantially horizontal position and its substantially vertical position, avoiding, therefore, that the seat hits the back.

Preferably, this damping means are formed by a carcass, which houses inside it a piston provided with a hole communicated with an air chamber defined between the carcass and the piston; and by an fin integral with the seat, which contacts the upper part of the piston when the seat turns from its substantially horizontal position to its substantially vertical position, moving the piston down as the air comes out through the hole.

Thanks to this feature, it is obtained an chair with a folding seat, whose turning movement to its substantially vertical position is carried out in a slight way, without hitting against the back, and the damping features are not deteriorated with the time, as happens when mechanical damping means are used.

Furthermore, the damping means used in the chair of the present invention have a reduced cost and they need no maintenance practically.

Advantageously, this carcass comprises an helical spring disposed around the carcass, being linked the helical spring with the piston housed inside the



DESCRIPTION OF A PREFERRED EMBODIMENT

As may be seen from fig. 1, the chair according  
5 to the invention comprises a back 1 and a folding seat 2,  
which can be in a substantially vertical position, in the  
case of the first two chairs, or in a substantially  
horizontal position, like in the third chair shown.

In this figure the chairs have been represented  
10 attached to a bar 3 provided with feet 4. The attachment of  
the chairs to the bar 3 is carried out, according to the  
embodiment shown, by means of some clamps 5.

The chair according to the invention comprises  
automatic returning means of the seat to its substantially  
15 vertical position when the chair user stands up from the  
seat. These means are seen in detail in fig. 2.

The hinge axis 6 is integral with the back 1 of  
the chair, it presents in its central part a sleeve 7  
integral with the seat 2, and the sleeve 7 rotates about  
20 the hinge axis 6. For returning the seat automatically to  
its substantially vertical position, the hinge axis 6  
comprises a helical spring 8 disposed around it, an end 9  
of this helical spring 8 being integral with the seat 2.

The helical spring 8 comprise a screw 10 that  
25 allows to regulate the tension of the spring 8, pressing in  
greater or smaller extent this screw 10. The tension of the  
spring 8 will be regulated so that the seat 2 returns to  
its substantially vertical position in a slight way without  
hitting the back.

30 This way, the hinge axis 6 is disposed in the  
contact area between the back 1 and the seat 2, since it is  
not necessary a counterweight, the helical spring 8  
carrying out the function of the counterweight in the  
chairs known up to now. Therefore, thanks to the  
35 arrangement of the hinge axis 6, when the seat 2 is in its

substantially vertical position, it does not exist practically any separation between the back 1 and the seat 2, avoiding the accumulation of dirt and dust in the area that will be in contact with the user's body.

5 It should be indicated that in fig. 2 is shown only one of the ends of contact area between the back 1 and the seat 2, the other end of the contact area between the back 1 and the seat 2 being provided with identical automatic returning means to those shown, so that each  
10 chair is provided with two helical springs 8 for the automatic return of the seat 2 to its substantially vertical position.

As may be seen in fig. 3, the damping means of the movement of the seat from its substantially horizontal  
15 position to its substantially vertical position comprise a couple of air cylinders 11 and a fin 12 integral with the seat 2. The function of the air cylinders 11 and of the fin 12 may be seen more clearly in fig. 5.

In fig. 5 the chair according to the invention  
20 is represented sectioned along line V-V indicated in the fig. 4.

As may be seen in this figure, the cylinder 11 is formed by a cylindrical carcass 13 in whose interior moves a piston 14, defining between the carcass 13 and the  
25 piston 14 an air chamber 15. Between the piston 14 and the carcass 13 it is arranged a sealing gasket 16 to avoid an air loss between the piston 14 and the internal wall of the carcass 13.

Around the carcass 13 it is disposed a helical  
30 spring 18, whose function is to maintain the piston 14 in its upper position.

The piston 14 comprises a hole 17 in its lower part in communication with the air chamber 15. The dimensions of this hole 17 will be the appropriate to allow  
35 the exit of an appropriate volume of air to carry out the



damping action, as it will be explained hereinafter in detail.

From the substantially vertical position of the seat 2 shown in fig. 5, if the user wants to sit down on the chair of the present invention, it should rotate the seat 2 manually in the suitable direction, indicated by the arrow A. This turning of the seat 2 will make the fin 12, integral with the seat, to leave the contact with the upper part of the piston 14, allowing the piston to move to its upper position (movement indicated by arrow B) by means of the helical spring 18 action.

When the user stands up from the chair of the present invention, the spring 8 rotates the seat 2 from its substantially horizontal position to its substantially vertical position. When this turning movement occurs, in a specific moment the fin 12 will contact with the upper part of the piston 14, which will be in its upper position. At this moment, the piston 14 will damp the turning movement of the seat 2, avoiding the seat 2 to hit the back 1.

This damping action is carried out because the piston 14 in its down displacement finds the resistance of the pressure of the air inside the chamber 15, therefore the seat can only move down as the air leaves the chamber 15 through the hole 17. Furthermore, the piston 14 will also find a certain resistance in the helical spring 18, but this spring 18 will have the appropriate features, so that the pressure of the air inside the chamber 15 carries out the damping action in its greater part.

Although reference has been made to a specific embodiment according to the invention, it is evident for a person skilled in the art that the described chair is susceptible of numerous variations and modifications, and all the mentioned details can be substituted by other technically equivalent ones, without departing from the protection scope defined in the appended claims.

C L A I M S

1. Chair with folding seat, that comprises a back (1) and a seat (2), which is hinged to the back about  
 5 a hinge axis (6), said seat (2) being moveable between a substantially vertical position and a substantially horizontal position, and it also comprises automatic returning means (8) of the seat (2) from its substantially horizontal position to its substantially vertical position  
 10 when the user stands up from the seat (2), characterized in that these automatic returning means (8) of the seat (2) to its substantially vertical position are arranged on the hinge axis (6), this hinge axis (6) being located in the contact area between the back (1) and the seat (2).

15 2. Chair according to claim 1, characterized in that these automatic returning means of the seat to its substantially vertical position comprise elastic means (8) integral with the seat (2) that cause the turn of the seat (2) from its substantially horizontal position to its  
 20 substantially vertical position, about the hinge axis (6), which is integral with the back (1).

3. Chair according to claim 2, characterized in that these automatic returning means of the seat to its substantially vertical position also comprise a sleeve (7),  
 25 arranged around the hinge axis, integral with the seat (2) (6) and that rotates around the hinge axis.

4. Chair according to claim 2, characterized in that the elastic means are formed by a helical spring (8).

5. Chair according to claim 4, characterized in  
 30 that it comprises regulation means (10) of the compression of the helical spring (8).

6. Chair according to claim 5, characterized in that the regulation means of the compression of the helical spring (8) are formed by a screw (10).

35 7. Chair according to anyone of the previous

claims, characterized in that it comprises damping means (11) of the turning movement of the seat (2) between its substantially horizontal position and its substantially vertical position.

5           8. Chair according to claim 7, characterized in that this damping means (11) are formed by a carcass (13) in whose interior houses a piston (14) provided with a hole (17) communicated with an air chamber (15) defined between the carcass (13) and the piston (14); and by an fin (12)  
10 integral with the seat (2), which contacts with the upper part of the piston (14) when the seat (2) turns from its substantially horizontal position to its substantially vertical position, moving the piston (14) down as the air comes out through the hole (17).

15           9. Chair according to claim 8, characterized in that the carcass (13) comprises a helical spring (18) disposed around the carcass, this helical spring (18) being linked in turn with the piston (14) housed inside the carcass (13), so that down movement of the piston (14) is  
20 carried out against the action of the helical spring (18) and pressing the air contained in the air chamber (15).

          10. Chair according to claim 8 or 9, characterized in that it comprises a sealing gasket (16) arranged between the carcass (13) and the piston (14).

25           11. Chair according to claim 8, characterized in that the fin (12) extends across the whole seat (2), two carcasses (13) being provided, with their corresponding pistons (14), arranged one at each end of the fin (12).

# A B S T R A C T

It comprises a back (1) and a seat (2), which hinged to the back about an hinge axis (6), said seat (2) being moveable between a substantially vertical position and a substantially horizontal position, and also comprising automatic returning means (8) of the seat (2) from its substantially horizontal position to its substantially vertical position when the user stands up from the seat.

It is characterized in that these automatic returning means (8) of the seat (2) to its substantially vertical position are arranged on the hinge axis (6), this hinge axis (6) being located in the contact area between the back (1) and the seat (2).

There is not any separation practically between the back and the seat when the seat is in its substantially vertical position, being this area preserved from dust and dirt.

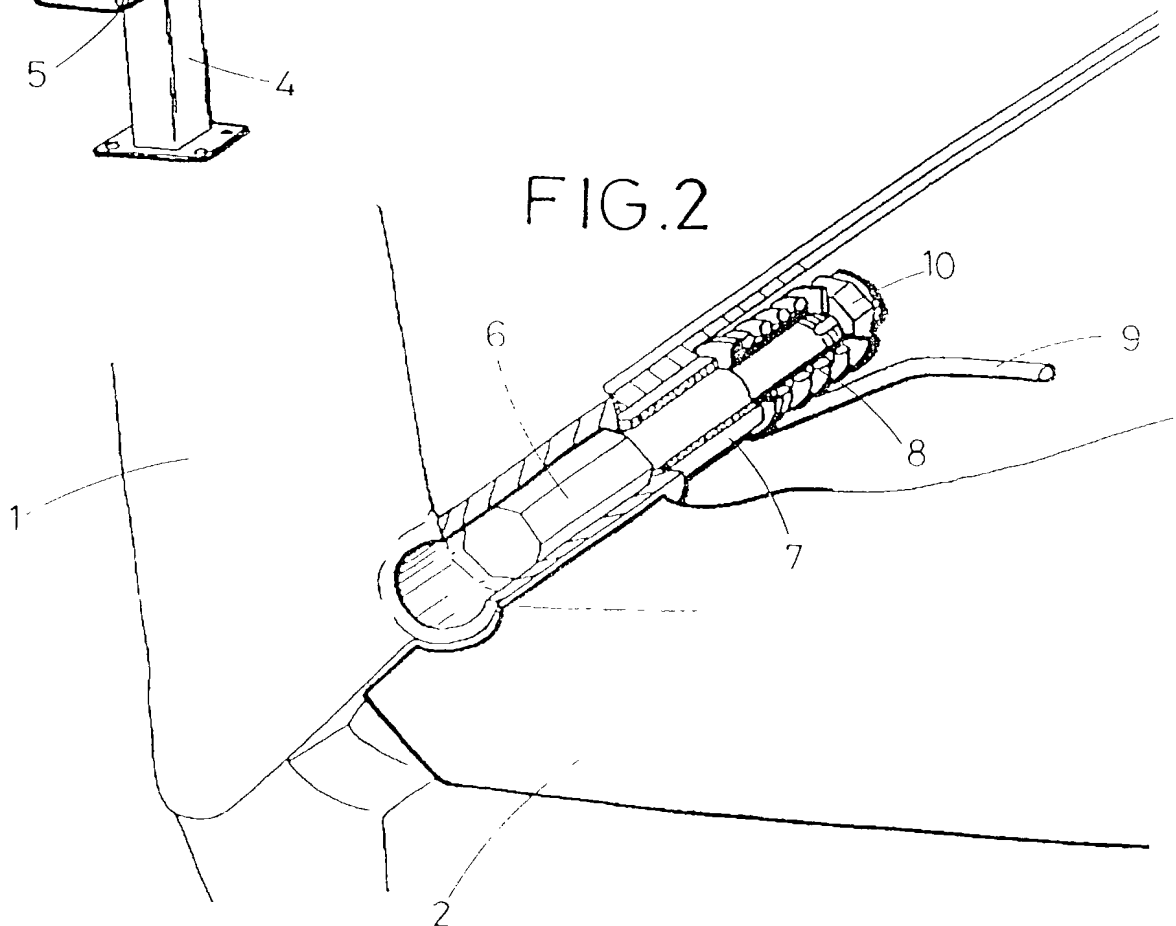
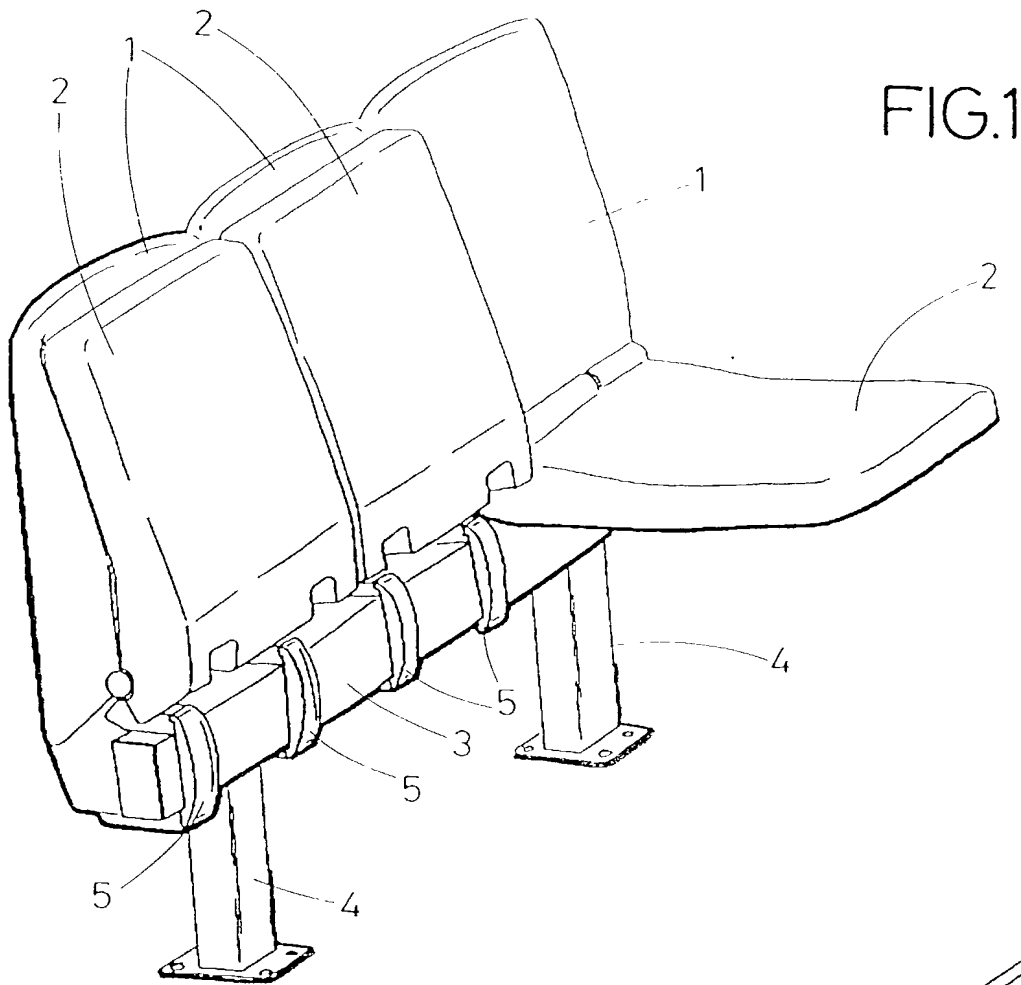


FIG. 3

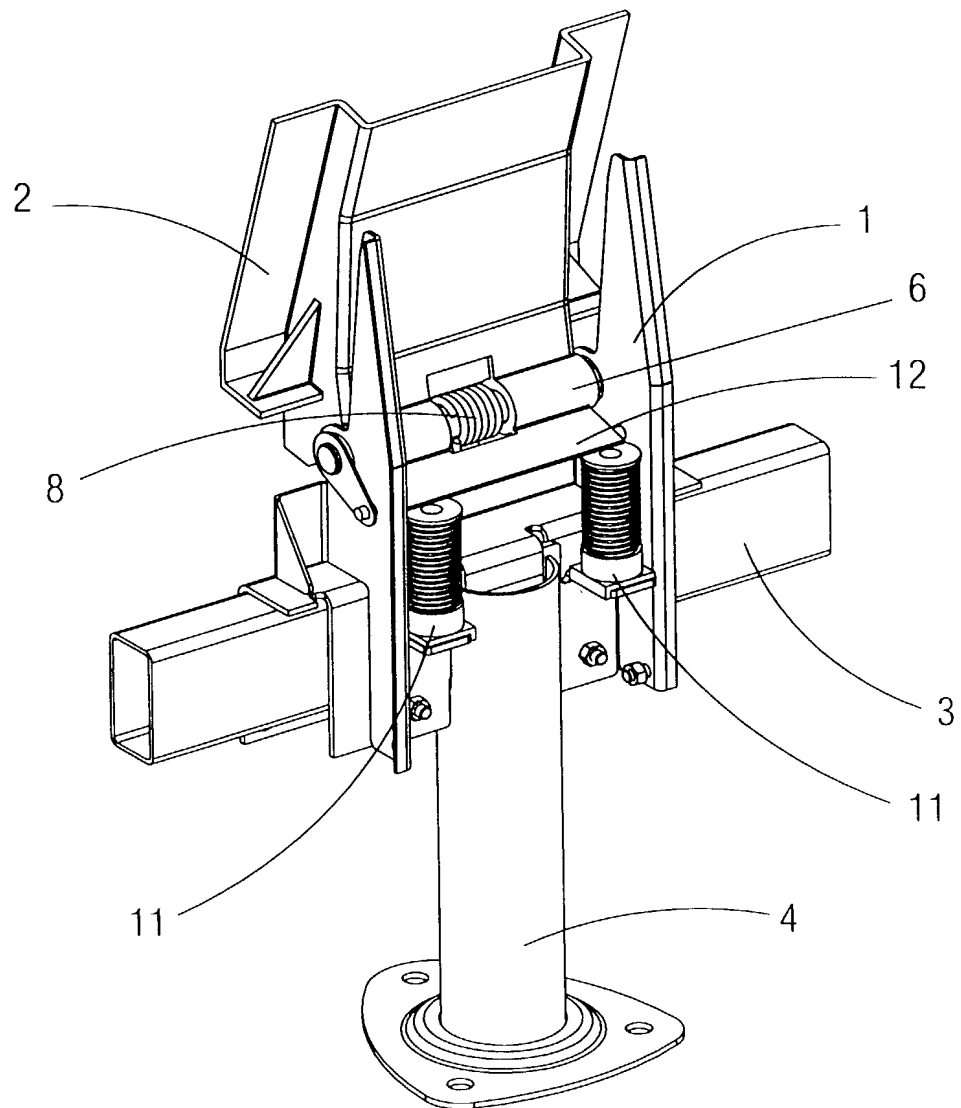


FIG. 4

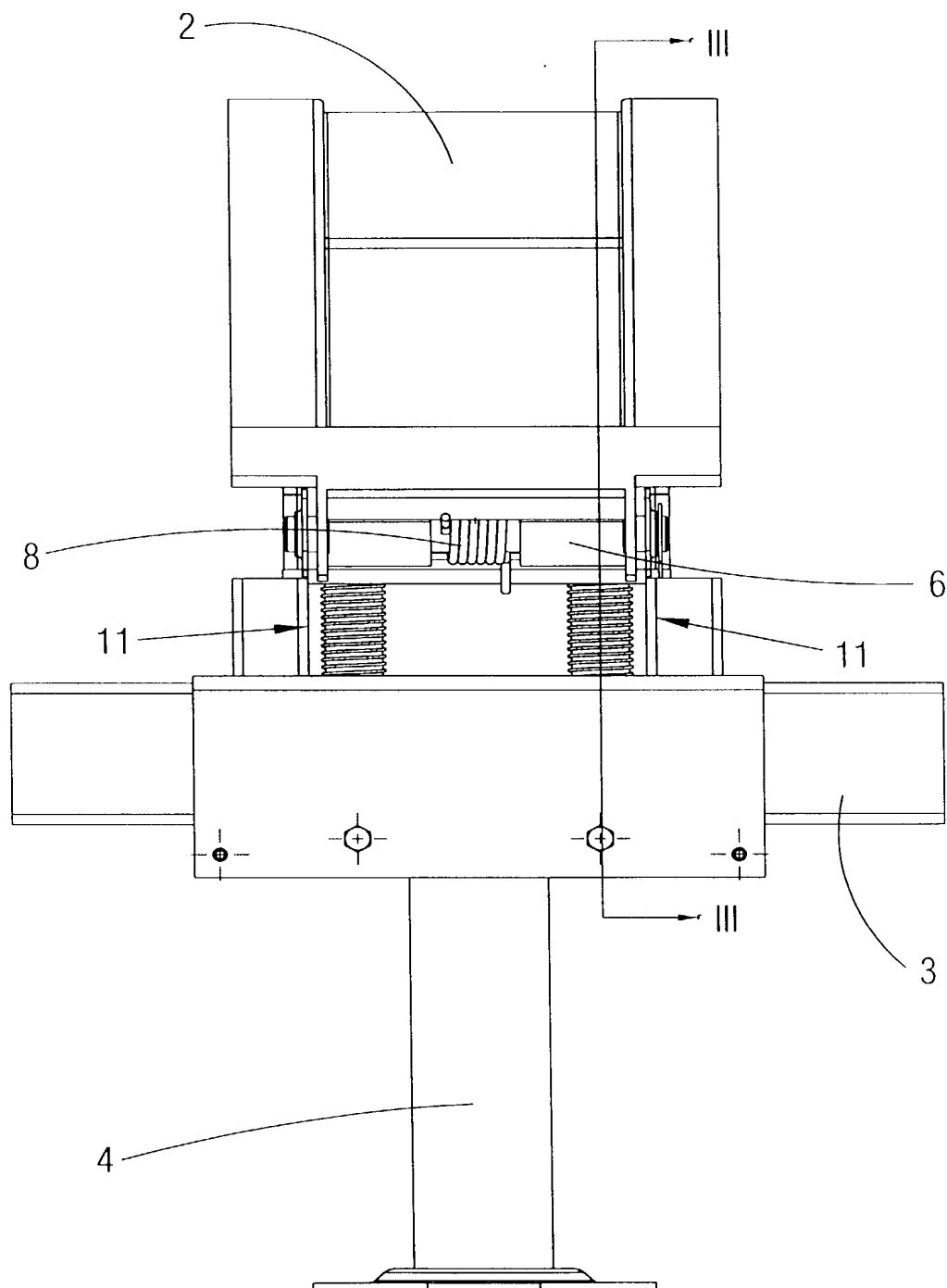
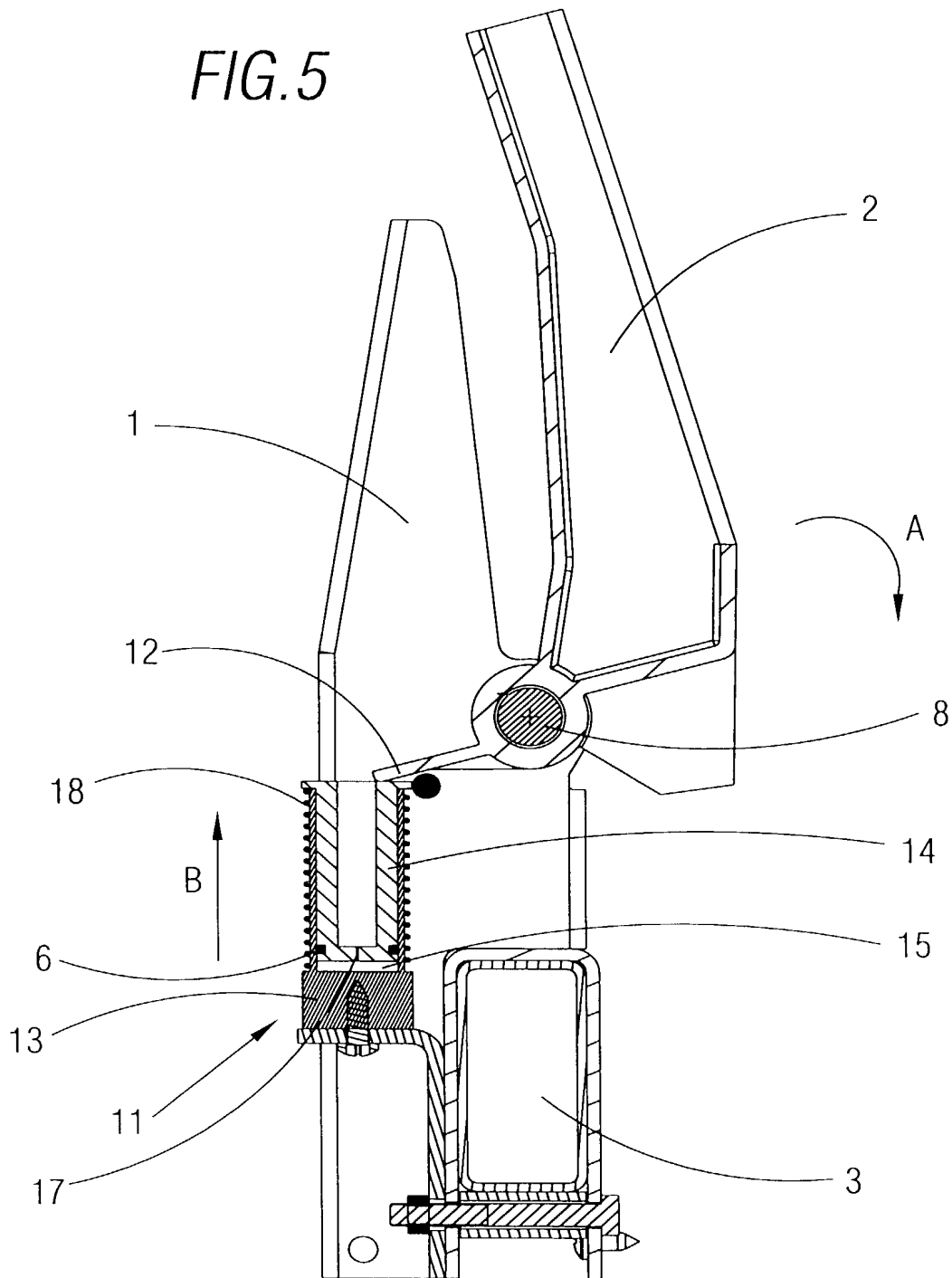


FIG. 5





I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YY)

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT International application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YY)	Parent Patent Number (if applicable)
PCT/ES00/00097	March 21, 2000	

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☒ Customer Number 21831

Direct all correspondence to:

☒ Customer Number 21831

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:

Given Name (first and middle [if any]) Family Name or Surname

Figueras Mitjans

Josep

Inventor's Signature [Signature]

Date October 15th 2001

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City \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ Citizenship \_\_\_\_\_

# DECLARATION AND POWER OF ATTORNEY FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

- ☐ Declaration submitted with initial filing  
☒ Declaration submitted after initial filing (surcharge (37 CFR 1.6(e) required))

First Named Inventor: Josep FIGUERAS MITJANS

COMPLETE IF KNOWN:

Application Number: 09/937,254

Filing Date: September 24, 2001

Group Art Unit: \_\_\_\_\_

Examiner Name: \_\_\_\_\_

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

CHAIR WITH FOLDING SEAT  
 (Title of the Invention)

the specification of which

☐ is attached hereto  
 OR

☒ was filed on (MM/DD/YY) September 24, 2001 as United States Application Number or PCT International Application Number \_\_\_\_\_ and was amended on (MM/DD/YY) September 24, 2001 (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above. I acknowledge the duty to disclose information which is material to patentability of this application as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YY)	Priority Not Claimed	Certified Copy Attached?	
				Yes	No
MU 9900719	Spain	March 22, 1999			X

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.